















## MODERN BRIDGE CONSTRUCTION

## Why Bridges Are Built Less Permanent Today.

The question is frequently asked, "Why are the bridges which we build today less permanent than those which the ancients built?" says F. J. Kersting, deputy state highway engineer of Missouri, in Good Roads, New York. One answer is the item of cost, chiefly because we build a vastly greater number

ber of bridges than did the antecedents. We build solely for the accommodation of the public, as we live by peaceful pursuits, whereas the antecedents lived by conquest, being almost continually at strife, and built mainly for army movements.

Heretofore financial conditions and the rapid growth of progress have made it necessary to do some things in the line of bridge building which were regrettable because the prime object was to build cheap and sometimes quickly built structures. That state of affairs is improving, and I am sure

STEEL SKIN: LOWER ONE SHOWS DOOR  
CARTS ABUTMENT.

open. There is no doubt but that when the funds are on hand and the conditions at the site are favorable it is best to build a concrete arch. It will also be found to be economical in the long run to build concrete footings on steel bridges regardless of the length of spans.

Many county officials through an erroneous idea that they are saving the county money build spans much too short for the purposes intended. The

is a serious mistake and the cause of the destruction of nearly all of the smaller bridges which have been destroyed by high water. County engineers should see that bridges are placed at a sufficient height above high water so that they will not cause drift. Particular attention should al-

The state highway engineer is frequently asked about timber piers, and the inquirer is generally prejudiced against them. The proper material of which to build piers or abutments is in stone and concrete. Tubular piers are, however, as excellent substitutes as they have been used for years in the highway work, but they are not reinforced. There are several reasons for this. The first place, there is usually a test difference in the

and were it not for the tubular piers many bridges in Missouri could have been built. Concrete or masonry piers require more excavation, and when water level is reached an expensive cofferdam is required along with much more pumping than is necessary in sinking a tubular pier, which is always set on a cofferdam. Therefore there is no rock foundation the distance in cost is even greater.

There have been more failures

concrete and masonry plans than the heavy use of tubular piers. In some cases this is due to the poor construction of the masonry.

Therefore there are many cases where the use of the same class of steel in the same manner, the same employers when building a cellar or trench in its locality.

The pressure against a tubular pier at time of high water is not great in the cylindrical form; it is not apt to hold drift for this reason. It is hard practice to set a tubular pier on a rock foundation in a situation where it has only a few feet of gravel or clay to penetrate. In some cases it is best policy to build a crib or masonry pier even though first cost be twice that of a tubular pier.

## WHEN CARE SAVES PROFITS IN SHEEP

When lambs are expected possibly worm quarters for the ewes, drenched with screw. Allow no one or any dog to frighten the sheep at any time now, for a sudden fright in May or in other cause premature birth or at least to have led efforts on hand.

On to the lambing because every hour counts until bedtime, and he's ready to answer any question you ask. He'll tell you what you saw that needs it and in attempt to get the youngsters. If possible it is a good plan to sleep near the sheep pasture and look in on them several times during the night. As soon as a lamb has dropped you're the dry bitch of becoming a warm cloth nestly dry and you'll be the way and settle in the straw. The lamb will be born sweet. Within six hours you should be taken nourishment from the ewe. This takes patience and often some searching, but it pays to persist.

As soon as the ewe has dropped the

Warm water, for the act of insinuating, will leave her very thirsty. The drink will soothe her nerves, quiet her anger, and she will give down her saddle freely and chew her cud contentedly. Cold water would be very harmful, and not fatal, at this time.

When lambs are diseased, separate them from the rest of the flock to prevent injury and keep them in the fold where you can watch them closely. It pays to let other things wait until your year's profit has died.

Be known sheep owners to turn

The splendid Cherry rein shown above was a prize winner in the eastern district of fairs but fell. The Cherokees are a somewhat broad, hairy and so hairy well where pasture is scant. They have been successfully produced in New York, Pennsylvania, North Carolina, Indiana, Iowa and other states. The

male of the same weight can be eight pounds. This ram was bred by A. F. White of Steuben county, N. Y.

pregnant ewes out in the pasture and place three to five lambs that have been away out in the field, were chilled and died of neglect.

Always speak low and gently to the ewes at this time; for a sheep knows by your voice if you are angry or joyful and it is the singing shepherd who they love.

If you get the lamb safely over the first forty hours it is likely to grow all right after that, but warmth, care and attention must be there whenever needed. If three are born to one ewe, as I have had happen, you must raise one with nipple and bottle or else get

**Cost of Illness**

Robert A. K. Staker of the Iowa Experiment Station has worked out some interesting data on the cost of raising a ton of silage. Figuring in the renting of land, plowing, cost of seed, planting and cultivating, he found that it cost 72 cents per ton. The cost of filling 25 tons of silage in a silo, including the silo, allowing a liberal wage for man and teams, he found to be 74 cents per ton. The cost of machinery and seasonings for silage, he found to be 10 cents per ton. The cost of all items such as interest on money invested, depreciation on buildings and machinery, taxes and repairs and even taxes and insurance, he found to be 48 cents per ton. Adding these three items together, he found that the cost of silage for a ton of corn silage to be \$1.94.

about the same figure.

Of all the means of warming a chilled pig and restoring his interest in things earthly probably there is nothing better than a vessel of warm water heated to about 95 or 98 degrees, in which his body and limbs can be submerged for ten to twenty minutes. In many instances it will well nigh revive the dead. If after this hot bath

—Colum's "Voyage In America."

**Keep the Gown Clean.**  
A cow with a back that itches and burns with chaff and dust cannot be as comfortable as one that's groomed every day. But that is not all. She will

her skin were nice and clean. When caring for your cows do not neglect

**Don't feed hay to horses.**  
You have no other kind available? It will  
water just before feeding. Many horse  
troubles may be traced directly to  
dusty hay, and there are much more  
easily prevented than cured.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.



